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FAMILY RELATIONS, QUALITY OF LIFE AND POST-TRAUMATIC STRESS AMONG AMPUTEES AND PROSTHETICS

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ABSTRACT

Objective: The aim of the present study was to assess nature of family relations, quality of life and post-traumatic stress among amputees and prosthetics.

Study Design: Cross-sectional study.

Place and Duration of Study: Artificial Limb Centers and hospitals of Islamabad and Rawalpindi. Duration of the study was from Jan 2015 to Sep 2015.

Material and Methods: The study was conducted on 160 trauma patients (N=160, n=80 amputees, n=80 prosthetics) from different hospitals of Islamabad and Rawalpindi. Non probability purposive sampling technique was used to collect data. Three questionnaires were administered to assess the family relations (IFR), Quality of life (WHO Quality of life scale -BREF) and Post-traumatic Stress (Post-traumatic Stress Disorder Checklist, PCL).

Results: The results of the study indicated that quality of life and family relations were negatively associated with Post-traumatic stress(r=-66** r=-20**) respectively for amputees and also negatively correlated for prosthetics (r=62** r=-31**) respectively. There were significant positive relationship between family relations and quality of life for amputees and prosthetics (r=11** r=21**) respectively. Hierarchical regression analysis showed that Posttraumatic stress is a significant negative predictor of quality of life. There were significant differences between amputees and prosthetics on family relations, quality of life and post-traumatic stress.

Conclusion: Present study demonstrated high prevalence of post-traumatic stress, low quality of life and less positive family relations in amputees than prosthetics, who had less PTSD, positive family relations and high quality of life. This high level of post-traumatic stress leads to low quality of life among amputees. The study would be helpful for rehabilitation professionals to make plan regarding therapeutic interventions to reduce post traumatic stress and increase their quality of life.

Keywords: Family relations, quality of life, post-traumatic stress, amputees, prosthetics.

INTRODUCTION

Amputation is the process of removal of a whole body part by any surgical or operative method. Amputation due to distress frequently becomes an important reason of impairment in daily routine. It may in longer run affects the social, economic and psychological state of people and it leads to social isolation, loneliness, lower self-esteem, post-traumatic stress and poor quality of life[1,2]. The amputation of a limb is one of the initially illustrated operations. Limb amputation surgical treatment follows the history of war situation. After the World War II, the establishment of prosthetic style and particular improvement in the use of these procedures for individuals with limb loss was increased[3,4]. The amputation affects the overall quality of life of an individual, as physical disability is connected directly with symptoms of despair, depression, nervousness and anxiety. The limb amputation has strong consequences on the individuals living in the community, as lose of a lot of abilities and physical tasks which were once not credited. Moreover, low self-esteem, recognized weaknesses, social isolation and feeling of being stigmatized are associated with limb loss. In some circumstances, amputation cannot be

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prevented due to accidents, traumas, disasters and attacks[5-9].

An amputation proves to be stressful and is often manifested in extreme worry, scary images and pictures of others being harmed (even in the absence of criteria for Post-Traumatic Stress Disorder)[6]. Post-Traumatic Stress Disorder is a psychiatric disorder that may appear after an individual faces or witnesses an incident involving vulnerable or real severe damage to self or others that originates a response of fright, hopelessness, exposure, or terror. The distinctive symptoms comprise of continual re-experiencing of the traumatic event, persistent avoidance of stimuli connected with the trauma and numbing of general responsiveness, and persistent symptoms of increased autonomic stimulation. The full symptom picture must be present for more than 1 month, and the disturbance must cause clinically significant distress or impairment in social, professional, or other significant areas of performance[10].

According to Desmond and MacLachlan[11], amputations cause a considerable change in psychosocial dealings of individual. Many individuals function in good health, but a notable subgroup experience clinically noteworthy emotional or social problems. The outcome of this observational research could be used to categorize the physiological and psychological risk factors that may direct to development of PTSD in patients with a traumatic amputation and hence affect their lifestyle and overall quality of life[12-14].

The existence of a helpful partner is essential when needed by the patient. Parents and proper health care providers can fight and watch their beloved struggle to restore freedom after the amputation. To allow for a complete recovery family associates and members are needed to take steps, so the individual with limb reduction can develop freedom and take effort[15]. The assistance and motivation of family associates can have a very powerful effect on their ability to cure and complete the levels of grieving. The earlier a prosthesis is applied, the less the psychological problems observed after amputation. On the other hand, if the prosthetic application is missing or late, greater degrees of anxiety, unhappiness, and self-consciousness are noted[16].

High quality of lifestyle as a very subjective viewpoint of the extent to which pleasure and fulfillment have been obtained, it has also been considered closely relevant to certain scientific, economic, psychological and public aspects[17]. The Globe organization tried to accept the complexity of the term "QOL", interpreting it as the understanding that one has about their place in their own lifestyle, in the viewpoint of lifestyle and their value system in which they stay and on regards to their goals, standards and concerns[18]. Posttraumatic stress, family relations, quality of life of amputees is a very significant issue now a day in Pakistan and the research is increasing day by day in this regard which affects people of all ages, gender and socio-economic status. In this research, connection between family relations, quality of life and Post-traumatic stress among amputees and prosthetics was investigated. The present study aimed to find out the comparative level of family relations, quality of life and Post-traumatic stress among amputees and prosthetics. And it is also important to mention that there is lack of research on this topic in Pakistan, hence this study proves very helpful for the future researchers and clinicians. Main objective was to study the family relations, quality of life and post-traumatic stress among amputees and prosthetics.

MATERIAL AND METHODS

Cross-sectional study design was used. Non probability purposive sampling technique was used to collect data. Sample size was calculated using WHO calculator for sample size determination in health studies keeping confidence level at 95% and power of test at 90. Sample comprised of 160 trauma patients (N=160), having amputees (n=80) and prosthetics (n=80). Inclusion criteria include only those

individuals who were having amputation and prosthetics. Exclusion criteria include those having any other physiological problem. The age range of sample was 15 years to 85 years. Sample was selected from different artificial limb centres and hospitals of Islamabad and Rawalpindi. Sample was selected from the outdoor and indoor departments of hospitals. The aforementioned sample was able to read and understand Urdu. The hypotheses of the present study are there is a significant relationship between family relations, quality of life and posttraumatic stress among Amputees and Prosthetics. Post-traumatic stress and Family Relations predict quality of life in Amputees and Prosthetics. There is a difference between Amputees and Prosthetics on Family Relations, Quality of life and Post-traumatic stress. Index of Family Relations was used to assess the family relations. It is one of the 9 scales of clinical measurement package (CMP)[19]. It was designed to measure the degree, severity or magnitude of a problem that family members perceived in their relations. Translated index of family relations was used in the present study[20]. Quality of life was measured by World Health Organization Quality Of Life Scale (WHOQOL-BREF)[21]. It is self-report inventory and is a brief version of world health organization quality of life -100. Adapted and translated version was used in the present research[22]. For the assessment of Post-Traumatic stress disorder the Post-traumatic stress disorder checklist (PCL) was used. The PCL is a 17-item inventory that assesses the specific symptoms of PTSD[23]. The respondent was asked to rate how much the problem described in each statement bothered him or her over the past month on a five-point scale ranging from1 (not at all) to 5 (extremely). The PCL has been shown to have good internal consistency in Vietnam and Persian Gulf veterans, victims of motor vehicle accidents, and sexual assault survivors ranging from 0.94 to 0.9724. For data collection the authorities of different Artificial Limb Centers and hospitals of Islamabad and Rawalpindi were approached for the permission regarding data collection. Patients were approached individually and the consent of participation was taken from them. They (patients) were assured that all the information will be kept confidential and will only be used for research purpose. In addition to the consent form and demographic sheet questionnaires index of family relations (IFR), Quality of life scale (WHOQOL-BREF) and Post-traumatic stress disorder checklist (PCL) were given to patients and they were briefed about how to respond to the questionnaires. Respondents were asked to read each item of the scale carefully and appropriately mark the answers. All their misapprehensions about the study were cleared before and after the administration of questionnaire.

Table-I: Cronbach's Alpha Reliability Coefficient of Posttraumatic Stress Disorder Checklist, WHO Quality of Life scale and Index of Family Relations (N=160).

Scales	Items	Alpha coefficient
Posttraumatic Stress Disorder Checklist	17	0.93
WHO Quality of Life scale	26	0.81
Index of Family Relations	25	0.91

Table-II: Correlation Matrix of quality of life, posttraumatic stress and family relations among amputees and prosthetics (N=160).

	QOL		IFR		PTSD	
	Amputees	Prosthetics	Amputees	Prosthetics	Amputees	Prosthetics
QOL			0.11**	0.21**	-0.20**	-0.31**
IFR				-	-0.66**	-0.62**
PTSD				-		

Note: **p<0.01, QOL=Quality of Life, IFR=Index of Family Relations, PTSD=Posttraumatic Stress Disorder.

RESULTS

Table-I show that all the scales are internally consistent and reliable. Their Cronbach's alpha reliability coefficient varies from 81 to 93. Table-II indicates that there is a significant positive relationship between quality of life and family relations of amputees (0.11**) and prosthetics (0.21**) and significant negative relationship between family relations and PTSD for amputees (-0.66**) and prosthetics (-0.62). There is also negative relationship between quality of life and PTSD for amputees (-0.20**) and prosthetics (-0.31**). Table-III shows hierarchical regression analysis indicating prediction of Quality of life from family relations and posttraumatic stress. Posttraumatic stress is a significant predictor of quality of life (β=-0.20, t=2.6, p<0.05). There is negative relationship between posttraumatic stress and quality of life. Furthermore, 34% variance is explained by posttraumatic stress towards quality of life. While, family relations is a non-significant predictor of quality of life (β=-0.04, t=-0.36, p>0.05) and 11% variance is explained by family relations towards posttraumatic stress. The table-IV shows mean, standard deviation and t-value of prosthetics and amputees on PTSD, IFR and QOL. There is a significant difference on the level of PTSD among amputees and prosthetics as the mean column shows that amputees have more PTSD (M=67.17, SD=3.03) as compared to prosthetics (M=41.73, SD=3.06).

Table-III: Hierarchical Regression analysis of Quality of life from Family Relations and Posttraumatic Stress (N=160).

Models	B	SEB	B	t	*p*-value
Step 1					
Constant	5.22	0.21		24.56	<0.001
PTS	0.01	0.01	-0.20	2.60	0.010
Step 2					
Constant	5.28	0.265		19.95	
PTS	0.01	0.01	-0.23	2.18	<0.001
FR	-0.00	0.01	0.04	-0.36	0.72

Step 1: R^2 =0.34; F=6.78; p<.05, Step 2: R^2=.11; F=0.13; p<.05, PTS= Posttraumatic Stress, FR= Family Relations.

Table-IV: Mean, Standard Deviation, t-value of amputees and prosthetics on PTSD, IFR and QOL (N=160).

variables	Amputees (n=80)		Prosthetics (n=80)				95% CI		Cohen's d
	M	SD	M	SD	t	*p*-value	LL	UL	
PTSD	67.17	3.03	41.73	3.06	19.09	<0.001	22.9	27.9	8.35
IFR	62.72	12.72	69.60	15.25	1.29	<0.001	-7.26	1.51	-0.49
QOL	7.75	0.77	15.77	0.65	0.22	<0.001	-0.24	0.19	11.26

Note: M=Mean, df= 158, QOL= Quality of Life, IFR=Index of Family Relations, PTSD=Posttraumatic Stress Disorder.

DISCUSSION

The current study was intended to investigate the family relations, quality of life and posttraumatic stress among Amputees and prosthetics in Pakistani culture. Limb amputation is the irretrievable loss of an extremity at any stage by trauma or surgical procedure. General circumstances that direct to limb amputation consist of benign and malignant bone, soft tissue tumors, unrestrained infections, peripheral vascular diseases and severe injuries. Trauma is the most important sign for amputation in adolescent patients. Limb loss to a traumatic injury is mostly abrupt and psychologically distressing. Such injuries can have intense impact on these people's lives but they are mostly very creative. The first hypothesis stating that there is relationship between posttraumatic stress, family relations and quality of life among Amputees and Prosthetics. It has been supported by the data with positive relationship between family relationship and quality of life. Quality of Life

(QOL) has long been a major explicit or implicit life-style and policy goal for individuals, communities, nations, and the world. The onset of a traumatic and sudden event such as limb loss has an enormous impact on an individual's body, mind, social world and family relationships, therefore creating a psychological disequilibrium in a person's overall quality of life[25,26]. Social discomfort, family disturbance and body image anxiety was found among some people with amputations, and these have been associated with a poorer adjustment in terms of greater activity restriction, depression and anxiety. Psychological problems and depression are common following amputation, as part of the emotional adaptation to limb loss. It was also concluded in a research that family cohesion was strongly related to quality of life[27]. Amputated victims are prone to PTSD symptom[28]. It is revealed that the higher is the post-traumatic stress the lower will be the quality of life. According to the Center for Disease Control and Prevention[29], the disable individuals have complexity in getting good amount of physical exercise for maintaining good physical condition. The third hypothesis stating that there is a difference between Amputees and Prosthetics on Family Relations, Quality of life and Post-traumatic stress. Results show that amputees have a higher level of Post-traumatic stress, less positive family relations and low quality of life than prosthetics, who had low post-traumatic stress, positive family relations and high quality of life. Results of one study revealed that the association of amputation with profound psychiatric comorbidity, some of which include major depressive disorder, post traumatic stress disorder (PTSD), impulse control disorder, phantom limb phenomenon, generalized anxiety disorder, panic disorder, and PTSD[30]. Limb loss can affect the factors such as appearance, ambulation, pain and frustration thus disturbing the individual's life style and his relations with his family. The patient with amputation has to face rejection most of the times because of his immobility and dependence on his family. While in case of prosthetics the family is more often witnessed as helping the individual and taking care of him because he's no longer totally dependent on them and is seen as trying to better adjust to his environment[31]. Amputation is a three-way threat that involves loss of function, loss of sensation, and loss of body image. Many individuals adapt so well to it due to their resilience and the ingenuity and dedication of their family and friends. Ill health, social isolation (especially after the death of a spouse), financial rigors, and professional restrictions may all collaborate to complicate adjustment to the limb loss and hence the prostheses attached. The people with prosthesis also suffer a number of problems including residual limb health, which is affected by the fit of the prosthesis in avoiding blisters, rashes and sores. The changes in body weight, the method of suspending the prosthesis, and controlling skin irritations, especially in warm weather, were all observed. Research result also supports the idea that even after prosthesis is being attached; an individual still suffers from somehow the same problems as being an amputee[32]. Regardless of the reason of amputation, it brings a substantial and severe change in an individual's life, and he goes through a phase of shock, to acknowledgement, and finally adjustment. And even after having artificial limbs attached individuals undergo the similar stages of adjustment as the results of my study also support this phenomenon in our culture[33].

CONCLUSION

Present study demonstrated high prevalence of post-traumatic stress, low quality of life and less positive family relations in amputees than prosthetics, who had less PTSD, positive family relations and high quality of life. This high level of post-traumatic stress leads to low quality of life among amputees. The study would be helpful for rehabilitation professionals to make plan regarding therapeutic interventions to reduce post traumatic stress and increase their quality of life.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

REFERENCES

1. Wald J, Alvaro R. Psychological Factors in Work-Related Amputation: Considerations for Rehabilitation Counselors. J Rehabil Res 2004; 70(4): 96-102.
2. Williams RM, Ehde DM, Smith DG, Czerniecki JM, Hoffman AJ, Robinson LR. A Two-Year Longitudinal Study of Social Support Following Amputation. Disabil Rehabil 2004; 26(14-15): 862-74.
3. Horgan O, MacLachlan M. Psychosocial Adjustment to Lower-Limb Amputation: A Review. Disabil Rehabil 2004; 26(14-15): 837-50.
4. Bowker JH, Pritham CH. The History of Amputation Surgery and Prosthetics. Atlas of Amputations and Limb Deficiencies: Surgical, Prosthetic, and Rehabilitation Principles 2004.
5. Saradjian A, Thompson AR, Datta D. The Experience of Men Using an Upper Limb Prosthesis Following Amputation: Positive Coping and Minimizing Feeling Different. Disabil Rehabil 2008; 30(11): 871-83.
6. Burger H, Maricek CRT. Return to Work after Lower Limb Amputation. Disabil Rehabil 2007; 29(17): 1323-29.
7. Renzi R, Unwin N, Jubelirer R, Haag L. An international comparison of lower extremity amputation rates. Ann Vasc Surg 2006; 20(3): 346–50.
8. Ephraim PL, Dillingham TR, Sector M, Pezzin LE, MacKenzie EJ. Epidemiology of limb loss and congenital limb deficiency: A review of the literature. Arch Phys Med Rehabil 2003; 84(5): 747–61.
9. Marzen-Groller K, Bartman K. Building a Successful Support Group for Post-Amputation Patients. J Vasc Nurs 2005; 23(2): 42-5.
10. Malik S, Farooqi YN. Workplace harassment and posttraumatic stress symptoms among Pakistani female doctors and nurses. Interdisciplinary. IJCBR 2011; 3: 55-69.
11. Desmond, MacLachlan M. Psychological issues in prosthetic and orthotic practice: A 25 year review of psychology in Prosthetics and Orthotics International D. Prosthet Orthot Int 2002; 26(3): 182-88.
12. Dougherty PJ. Transtibial amputees from the Vietnam War. Twenty-eight-year follow-up. J Bone Jt Surg 2001; 83(3): 383-89.
13. Fergason J, Keeling JJ, Bluman EM. Recent Advances in Lower Extremity Amputations and Prosthetics for the Combat Injured Patient. Foot Ankle Clin 2010; 15(1): 151-74.
14. Ziegler-Graham K, MacKenzie EJ, Ephraim PL, Travison TG, Brookmeyer R. Estimating the prevalence of limb loss in the United States: 2005 to 2050 Arch Phys Med Rehabil 2008; 89(3): 422-29.
15. National Amputee Statistical Database. The Amputee Statistical Database for the United Kingdom 2006/07. Edinburgh 2009.
16. Schofield CJ, Libby G, Brennan GM, MacAlpine RR, Morris AD, Leese GP. Mortality and Hospitalization in Patients after Amputation: A comparison between patients with and without diabetes. Diabetes Care 2006; 29(10): 2252-6.
17. Garavito L, Gómez MMN, Gutiérrez RMV, Castellanos SAO, Vergara MP, Pradilla YKR. Psychological well-being and quality of life in patients treated for thyroid cancer after surgery. Terapia psicolÓgica 2010; 28(1): 69-84.
18. Nejat S, Montazeri A, Holakouie Naieni K, Mohammad K, Majdzadeh SR. The World Health Organization Quality of Life (WHOQOLBREF) questionnaire: Translation and validation study of the Iranian version. J Sch Public Health Inst Public Health Res 2006; 4:1–12.
19. Hudson WW. Index of family relations. The clinical measurement package: A field manual. Chicago: Dorsey Press. 1982.
20. Aziz S, Shah A. Home environment and peer relations of addicted and non-addicted university students. J Psychol 1995; 129(3): 277-84.
21. WHOQOL Group. Development of the World Health Organization WHOQOL-BREF quality of life assessment. Psychol Med 1998; 28(3): 551–8.
22. Khan MN, Akhter MS, Ayub M, Alam S, Laghari NU. Translation and validation of quality of life scale, the brief version. J Coll Physicians Surg 2003; 13(2): 98-100.
23. Weathers FW, Litz BT, Herman DS, Huska JA, Keane TM. The PTSD Checklist (PCL): Reliability, validity, and diagnostic utility. Paper presented at the 9th Annual Conference of the ISTSS, San Antonio, TX 1993.
24. Blanchard EB, Alexander J, Buckley TC, Forneris CA. Psychometric properties of the PTSD Checklist (PCL). Behav Res Ther 1996; 34: 669-73.
25. Davidson J, Tharwani HM, Connor KM. Davidson Trauma Scale (DTS): normative scores in the general population and effect sizes in placebo-controlled SSRI trials Depress Anxiety 2002; 15(2): 75–8.
26. Marshal C, Stansby G. Amputation and Rehabilitation. J Vasc Surg 2010; 28: 284-87.
27. Barrera M, Pringle BLA, Sumbler K, Saunders F. Quality of life and behavioral adjustment after pediatric bone marrow transplantation. Bone Marrow Transplant 2000; 26(4): 427-35.
28. Cheung E, Alvaro R, Colotla VA. Psychological distress in workers with traumatic upper or lower-limb amputations following industrial injuries. Rehabilitation Psychology 2003; 48: 109–12.
29. Centers for Disease Control and Prevention. The health consequences of smoking: a report of the Surgeon General. Washington (DC): Dept of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health 2004.
30. Ebrahimzadeh MH, Rajabi MT. Long-term outcomes of patients undergoing war-related amputations of the foot and ankle. J Foot Ankle Surg 2007; 46(6): 429-33.
31. LaPlante MP. The Demographics of Disability. Milbank Q 1991; 69(suppl 1-2): 55-77.
32. Legro MW, Smith DG, Ehde DM, Reiber GE, delAguila M, Boone DA. Phantom Limb, Residual Limb, and Back Pain after Lower Extremity Amputations. Clin Orthop Relat Res 1999; 361: 29-38.
33. Seymour R. Prosthetics and Orthotics: Lower Limb and Spinal. Wolters Kluwer Health 2002.