

Traumatic Limb Loss: The Psychosocial Consequences of Unplanned Amputation in Young Adults

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Abstract: The study attempted to investigate the psychosocial consequences of traumatic limb loss in young adults. It also endeavored to explore if there is any variation in the level of adjustment to amputation on the basis of nature of amputation surgery or process. The present study included a sample of 100 young adult (Aged between 21-40 years) men and women both, who undergone amputation surgeries and admitted in different government and private hospitals of Peshawar District. Due to the scarcity of sample, convenient sampling technique was used to collect data. The psychological Adjustment Scale developed by Sabir (1999) was used to examine the amputee's level of psychological adjustment. A demographic data sheet was used to collect demographic information along with description of the cause of incident which lead to amputation. The finding revealed that majority of the patients showed signs of psychological maladjustment such as denial, stress, anxiety, emotional sensitivity, negative self-image as well as problems in interpersonal relationships. Results showed that majority i.e. 76% of the cases of amputations were caused by unplanned accidental reasons while only 24% of amputation surgeries were the result of a planned treatment (diabetes, infections etc.). Road traffic accidents were the most frequent cause of amputation, accounting for 56% of all the cases.. Significant variations were seen in the level of the psychological adjustment of amputees with regards to cause of limb loss. $\{t(98) = 8.92, p < .01\}$ Patients with planned limb amputation scored better on psychological adjustment scale (M=118.29, SD=6.76) as compared to patients who had traumatic or unplanned amputation (M=89.98, SD=15.01) which shows that amputees with traumatic amputation exhibits more adjustment issues after the sudden loss of limb. It is concluded from this study that Traumatic Amputation or sudden unexpected loss of limb drastically disturbed an individual psychological state. In such cases, the patients are not mentally prepared for this loss and it leads to considerable psychosocial adjustment issues. It was found that nowadays, road traffic accidents are the major cause of limb loss and Patients undergone traumatic/ unplanned amputations shows more adjustment issues than those who have planned amputation.

Keywords: Amputation, Anxiety, Accidental, Depression, Psychological adjustment, Planned, Trauma.

1. Introduction

To lose a limb is a catastrophic event, but in certain circumstances, amputation may be the only option to save a person's life. This is obviously a life-changing event for the victim, without any chance of reversal-the only alternative is to fit a prosthetic limb. (AnamikaSahu, Rajesh Sagar, et al, 2016). At present times, the chance of incurring injuries and limb losses or amputation increased markedly. The reason being the rising levels of political instability and tensions between nations, bringing with them wars and terrorism resulting in higher level of such injuries recorded all over the world ultimately affecting people from every walks of life, both civilian and military (Silander, 2018). Such injuries or limb losses inevitably influence a victim's life in a number of ways. Not only is the body part lost, but it has profound consequences for other bodily functions such as mobility, independence and self-government. Similarly, victims may also be affected financially, socially and psychologically (Iqbal, & Mohamed, 2019).

A person's psychological condition is a crucial part of their well-being, and must be acknowledged in an attempt to understand a person's general disposition. Although amputation radically alters a person's body functioning, but its psychological effect can be just as profound, and enormously affects all the activities of life, from simple housework chores to taking social and professional responsibilities (Solgajová , Sollár , & Vörösová, 2015; Silander, 2018). Describing the extent to which amputees' lives are distorted, earlier research indicated that amputation not only disturbed way of life and capacity to earn but also altered a person's self-perception and attitude towards life. It would therefore be correct to say that the effects of limb loss are not just physical and financial, but also psychological and social (Ramirez & Menaker, 2017).

The amputee's psychological response to this traumatic event is completely understandable as they feel mutilated and vulnerable (Tintle, 2010; Iqbal, & Mohamed, 2019).

Contemplating this permanent change that took place in their life, they develop a sense of helplessness and agony (Jasmiry, 2016; Desmond, 2007). The resulting disability from the amputation not only cause the person to lose their self-confidence, but they may also develop feeling of ineffectiveness and uselessness that other people only view them with pity, or even contempt. Consequently, they incur psychological and social attitudes that influence most parts of their life (Kolawole, 2009).

The psychological effect of limb loss varies between people and is reliant on the situation and state of affairs which impose this state (Cavanagh, 2006; Ahmad, 2009). Research on this subject indicates that the context in which amputation happens has a large bearing on the psychological effects that occur as a consequence (Uustal, 2015). The initial reaction to this traumatic event depends on whether the amputation happens following a sudden or accidental set of circumstances, or it occurs as a medical treatment for a chronic illness or it is the result of an aggressive, life-threatening infection (Mckechnie & John, 2014). Research posited that the amputation's cause is equally significant in terms of the victim's psychological reaction (Pooja, & Sangeeta, 2013).

Therefore, bearing in mind the importance of psychological aspect of limb loss and the paucity of research in this area, this research is sets out to explore the unspoken psychosocial impact of this trauma and attempts to find out to which the extent it affects an amputee's psychological harmony and

balance. Furthermore, this study also attempted to analyze the variation in the level of adjustment on the bases of nature or cause of limb loss.

2. Method

3. Total 100 participants formed the sample in this cross sectional study; they were young adult men and women who were receiving treatment in various government and private hospitals in the Peshawar district of Pakistan. The study targeted young adults aged between 21 and 40 years as this is the most productive and ambitious stage of life and any life tragedy or traumatic accident at this age drastically influenced their lives leading to numerous psychosocial issues (Jasmiry, 2016). The study includes major limb amputation (i.e. loss of full limb or amputation above knee and above elbow) cases which took place not less than six weeks and not more than six months before, as adjustment to limb loss may differ with time since amputation. The study excluded those patients who had congenital limb amputation, or had other physical or psychological disabling conditions prior to limb amputation. Convenient sampling technique was used to collect the sample from the population depending upon the availability of patients fulfilling the inclusion criteria.

4. A self-administered questionnaire-based survey method was used to collect data. For the purpose of studying the degree of patient's level of psychological adjustment, the psychological adjustment scale devised by Sabir Fizza (1999) was employed. This scale was developed in Urdu language, comprised of 27 items and measures the level of adjustment in five domains'. It includes Accurate perception of reality (APA), Ability to cope with stress and anxiety (ACSA), Ability to express full range of emotions (AEFRE), Positive self image (PSI), and Good interpersonal relationships (GIR). Possible full scores ranged from 27-135 with cut off=81. Good psychological adjustments are indicated by high scores, and poor adjustments by low scores. The scale's reliability coefficient is .82.¹⁸

Furthermore, demographic data sheet was used to collected data about various demographic traits as age, gender, socio-economic status and cause of amputation etc. Hospital directories were used to gain contact details of potential participants, and after their consent had been acquired, they were informed about the content and objective of the study. The sample was divided into two groups. Group 1 comprised of accidental/traumatic or unplanned amputation cases , While Group 2 featured those patients who had planned amputation. The questionnaires were filled by the patients under the supervision of the researcher.

Results

A breif summary of the demographic information obtained through demographic data sheet are given in the tables below

Table 1

Gender, Age and Educational and Occupationalstatus of Respondents (N=100)

S.n	Variable	Grouping	f(%)
o		Male	80 (80.0)

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1	Gender	Female	20 (20.0)
		Total	100 (100.0)
2	Age	21-30yrs	44 (44. 0)
		31-40yrs	66 (66. 0)
		Total	100 (100.0)
3	Educational status	Illiterate	40 (40 .0)
		Middle	28 (28 .0)
		F.A	20 (20 .0)
		B.A n above	12(12 .0)
		Total	100 (100.0)
4	occupational status	Shopkeeper	4 (4.0.)
		Business	6 (6.0)
		Farmer	17 (17.0)
		Service	10 (10.0)
		Driver	2(2.0)
		House Wife	4 (4.0)
		Misc odd jobs	57 (57.0)
		Total	100 (100.0)

Table no 1 describes the gender, age, educational status and occupational status of the respondents. Result of the current study revealed that majority of the respondents i.e. 80% were males and only 20% were female. It was also found that 44% of respondents were between the age range of 20-30 years while 66 % were between the age group of 31-40 years. As far as the educational status of respondents is concerned results depicted that majority of the respondents (40%) had no education or was illiterate. Moreover 28 % of the sample was able to complete their studies up to middle school and 20 % of the total sample was intermediate degree holders. It was further found that a small percentage i.e. 12% of the respondents had bachelors or other higher degrees.

In case of occupational status of the respondent's, results further revealed that majority (57%) of the amputees were doing some sort of odd unskilled laborious jobs. Apart from this, a large (17%) percentage of amputees belonged to farming and 10 % were doing regular service. Similarly 6% were businessman, 4% were shopkeeper, 4% were housewives and 2% were divers.

Table 2

Cause, time since amputation and ability to do routine tasks (N=100)

S.no Variable Grouping f(%)

		Planned causes				
1	Cause of Amputation	Diabetics	16	24(24.0)		
		Infections	8			
		Unplanned causes	Road Accident	56 (56.0)	76(76.0)	
			Gun Shot t	7 (7.0)		
			Electric Shock	3 (3.0)		
			Bomb Blast	6 (6.0)		
			Falls	4 (4.00)		
Total			100 (100.0)			
2	Time since amputation	Up to 2 Months		13 (13.0)		
		3- 6 months		33 (33.0)		
		7 months to 1 year		54 (54.0)		
		Total		100 (100.0)		
3	Ability to do routine tasks	No.		37 (37.0)		
		Yes		63 (63.0)		
		Total		100 (100.0)		

Table 2 further describes the different causes of amputation, time since amputation and patients ability to do routine tasks. Results of the study revealed that 76% of the cases of amputations were caused by unplanned accidental reasons while 24% of amputation surgeries were the result of a planned treatment. The data reported that road accidents were the most frequent cause of amputation, accounting for 56% of all the cases, while diabetes and infections accounts for 24% among the total. Similarly, 3% were caused by electric shocks, 7% by gunshots and 6% were the result of bomb blasts while 3% of amputations were caused due to falls. The results clearly showed that the ratio of unplanned traumatic amputation is much greater than planned amputation.

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With respect to the time since amputation, it was found that 13% of cases take place within the previous 3 weeks to months and 33% of cases take place within last 3-6 months of time period. It was also found that maximum 54% of amputation takes place within the previous 7 months to 1 year of time period. Results also reveals that 63% of the amputees were able to do their normal routine works and 37% of cases faced difficulties in doing their routine life activities

Table 3
Descriptive Statistics of Psychological Adjustment scale and its subscales (N = 100)

S.No	Scales	Range	Min	Max	Mean	St.Dv	Var	Skw
	Overall scores on Psychological Adjustment scale	71.0	57.0	128.0	97.7	17.9	334.0	-.012
Subscales of Psychological Adjustment								
1	Ability to express emotions	16.0	14.0	30.0	22.2	3.6	13.42	.07
2	Social relationships	12.0	8.0	20.0	15.3	2.8	8.04	-.18
3	Ability to manage with stress	17.0	12.0	29.0	20.3	4.2	17.63	.24
4	Adequate Perception of reality	13.0	8.0	21.0	15.4	2.9	8.65	-.25
5	Positive self-Image	22.0	11.0	33.0	24.8	6.3	38.01	-.46

According to figures provided in the Table no 3, almost all amputees shows signs of Psychological maladjustment as revealed in the scores of Psychological Adjustment scale. The minimum score on the scale was 59 while maximum score was 126, whereas the total mean score on psychological adjustment Scale (PAS) was 96.78. Similarly, amputees score on sub-domains of psychological adjustment also indicated adjustment issues of various degrees.

Table 4 *t*-statistics for level of Psychological adjustment and nature of amputation.

Variables	Unplanned causes n=76		Planned causes n=24		<i>T</i>	<i>df</i>	95 % CI	
	Mean	SD	Mean	SD			LL	UL
PAS	88.79	15.91	117.29	6.86	-8.73*	98	-34.69	-22.01

* $p < .05$

Table 3 reported the level of psychological adjustment with respect to cause of amputation. An independent t-test was used to verify these differences and the mean scores on psychological adjustment scale of both groups were compared. Significant variation was found in the level of the psychological adjustment $\{t(98) = 8.73, p < .01\}$ of amputees with regards to cause of limb loss. The finding showed that patients with planned amputations ($M=117.29, SD=6.86$) had better adjustment level than those patients whose amputation was unplanned or accidental ($M=88.79, SD=15.91$).

Findings and Discussions

It is commonly noticed that one of the greatest difficulties for an individual experiencing limb loss is not only to triumph over the physical pain of amputation surgery but also to overcome the psychological and social stigma associated with loss of limb (Sinha, & Van Den, 2011). Many studies revealed that the physical wounds of amputation may heal after some time, but the endless psychosocial challenges after limb loss take considerable time to mend over (Kalpana, & Suprakash, 2014; Phillip, 2012; Kolawole, 2009). The loss of a person's limb is always a terrible event to endure, and people who undergo amputation experience a life-changing event. Apart from the radical alteration in their body's appearance and the way their body functions, all aspects of their life may alter – from performing simple everyday tasks to having to constrain their ambitions and expectations. These changes are in addition to the psychological effects that result from amputation (Lai, & Stanish, 2009).

Recognizing the significance of psychological aspect of limb loss, this study attempted to uncover the long term psychosocial consequences of this incident. The present study targeted only young adults patients (20-40 years) for the reason that this is the most active and productive segment of society as compared to any other age groups and are much more deeply affected by any acquired disability, including amputation (Jasmiry, 2016). Individual at this age group is also more conscious about their physical appearance & body perfection and considers it as a standard of self-evaluation (Darnall, 2005). Young people are also more sensitive about the social stigma associated with any kind of disability. As a result in cases of amputation they experience more anxiety and depression resulting in distress and maladjustment as compared to other age groups (Kauzlari, & Kauzlaric, 2007). A research conducted by Behel, (2002) also agreed to the notion that young amputees were significantly at high risk of exhibiting psychosocial symptoms. Amputation restricted their everyday life activities and more specifically they not only had appearance related anxiety but are also concerned about social stigmatization of amputation.

Detailed review of the psychological state of young amputees revealed that almost every amputee experienced psychological disturbances of various degrees, and their scores on the psychological adjustment scale indicated that this is a common and expected response to the trauma. The results of different subscales illustrate, that, it is very difficult for a person to accept this reality that one has irrevocably lost a part of their body, leading to a disabling condition. Consequently, a person begins to display responses such as denial, tantrums, mood swings, stress, depression, negative self-image and social isolation. A study conducted by Muzaffar et al, also reported similar findings and stated that such victims suffered from conditions like depression, needless anxieties, poor appetite, or weakened mental resolve; they even feared that their condition would get worse, and often refused assistance and support from people who were willing to help them.

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The present study also revealed that due to amputation an amputee self-image and self-worth adversely affected, to the extent that they develop negative self-image and think of themselves as useless, and burden to everyone around them, even including their own family. These feelings, coupled with their anxiety and self-consciousness, which influence their social relationships, and as a result they avoid social engagement and become socially isolated (Uustal, 2015). In similar context, Williams et al, further added parallel points and claimed that the initial effect of amputation is great anxiety, but that this often develops into depression. It was stated that anxiety can also be manifested in problems in sleeping, over-sensitivity, nervousness, and a type of silent cognition, the result of which is that people often isolate themselves socially and wallow in self-pity. They frequently spurn the efforts of those who have sympathy with their plight and try to help them turn their life around (Silander, 2018).

Analyses of the possible causes of limb loss revealed that the majority of amputations occur through unforeseen or accidental events – 76% of all amputations, as opposed to 24% from planned operations. This study's findings echo the case study that Soomro et al. (2013) undertook in Sindh province, in Pakistan. The study cited road accidents and traumatic events as the foremost causes of amputation, while diabetic effects, infections and workplace accidents also account for many incidences of amputation.

The reasons behind rising rate of accidental/ unplanned amputation in the literature is the increased present inflow of automobiles without any proper planning of roads for its accommodation. In addition, frequent traffic rules violations result in increased road traffic accidents which may leads to serious injuries including amputation (Chadda, 2013). Secondly, another common cause of limb loss is increasing violence and political instability in Pakistan. Being the front line state in the global war against terror this country suffers a lot. There have been greater numbers of blasts from bombs, terrorist atrocities, and terrible attacks on people and cities, leading to multiple killings and the sort of awful injuries that result in amputation (Mansoor, et al., 2010).

Analyses of the nature and causes of the limb loss revealed that amputation can either be a planned procedure or it can be unplanned traumatic limb loss. In case of planned amputation such as in diabetes or other infections, the surgeon and patients mutually agrees and plans to go for amputation. Such patients knew that they were going to lose a limb because of their medical condition, consented to the procedure and are emotionally ready for this loss (Abeyasinghe, 2012). On the other hand, sometimes limb loss may also occur as a result of a sudden unplanned, traumatic or accidental incident which is not only painful but also shocking as well. In these case, the patients are not mentally prepared for the loss of a limb and hence they tend to incur more psychological trauma than those who have to deal with amputation as a planned medical intervention (Phillipo, 2012). The present study confirmed these findings and revealed that traumatic amputation enormously affects the lives of the people experiencing it and find it is very difficult to cope with it resulting in exhibition of greater psychological adjustment issues as compared to patients with planned amputation. These results confirmed some prior investigation on the relationship between amputation causes and the resultant psychosocial consequences. Abeyasinghe et al., stated that amputees with accidental or traumatic amputations were shown to have less self-esteem and were at greater risk of having increased levels of anxiety and depression symptoms, when compared to amputation that took place as a planned treatment for any disease or infection. These results can be explained by the fact that victims of accidental, unplanned amputation are mentally unprepared for such an event. They may refuse to accept it, and take a long time to come to terms with the way that

their body looks after such an event, or the limited functions that they can now carry out. Conversely, in planned amputation, the patient has a chance to prepare themselves for this terrible event. They may get time to acclimatized to their altered physical condition, which helps them to cope with its psychological effects. Subsequently it aids in speedy rehabilitation process in terms of psychosomatic distress and rebuilding their self-worth (Burger, & Marincek, 2007).

5. Conclusion

It is concluded from this study that Traumatic Amputation or sudden unexpected loss of limb drastically disturbed an individual psychological state as they are not mentally prepare for this loss. This permanent change in their bodies not only effects their way of life and capacity to earn but also altered a person's self-perception and attitude towards life leading to countless psychosocial adjustment issues. It was found that nowadays, Road traffic accidents are the major cause of limb loss and Patients undergone traumatic/ accidental and unplanned amputations shows more adjustment issues than those who have planned amputation.

6. Recommendations :It is urged that psychological treatment of amputees is also very important and amputee's need our special attention, care and psychological support to regain their courage, strength and independence. Medical staff, doctors, surgeons, nursing staff, psychiatrists, and physiotherapists all played significant role in the process of rehabilitation. Moreover, family specifically and society in general plays a very important role in helping these people to adjust to their disability in a positive and constructive way.

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