

## Efficacy of Cognitive Behaviour Therapy and Quality Of Life in the Amputees

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### ABSTRACT

The objective of the study was to assess the impact of cognitive behavior intervention in enhancing the quality of life in individuals with amputation. **Methods:** A sample of 100 patients with specified inclusion –exclusion criteria was selected and sequentially allotted (fifty each in experimental n=50 and control n = 50) groups. An experimental design with pre-and post – assessment was adopted. Assessment was done using Socio – demographic and clinical data sheet, World Health Organization Quality of Life Scale- Brief Version (WHOQOL). A cognitive–behavioral intervention programme was developed incorporating psycho education, behavioral techniques (e.g., relaxation, activity scheduling), cognitive techniques (e.g. distraction, cognitive restructuring) and behavioral counseling to significant others. **Results:** showed that on QOL was observed using the WHOQOL-BREF.QOL among the experimental group significant enhancements in Physical health domain, Psychological domain, Social domain, Environmental domain, overall QOL and overall health indicates that there significant improvement in QOL. There were no such changes in the Health habits subscale.

**Keywords:** Amputation, Quality Of Life, Cognition

Most of us are born as whole complete human beings. Mind and body is connected through nerves, muscle and bone. Unfortunately this system is sometimes torn apart by disease or unfortunate accidents. An amputation is a significant loss and can cause many lifestyle changes. Whether the limb is removed as a result of trauma, infection or disease, patients experience a change in their center of gravity, mobility and ability to perform activities of daily living like dressing, toileting and bathing.

Amputation is defined as —the surgical or spontaneous partial or complete removal of a limb or projecting body part covered by skin and is one of the most common acquired disabilities

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(Rybarczyk, Edwards & Behel, 2004). Individuals with amputations comprise a diverse clinical population, with significant heterogeneity observed in the level, cause, gender, and age distribution of this condition, as well as the degree of disability experienced, both physical and psychosocial (Gallagher & Maclachlan, 2001).

### ***Incidence And Prevalence Of Amputation***

The global incidence of amputation is difficult to ascertain, as rates vary widely both between and within countries (Holman, Young & Jeffcoate, 2012). The Global Amputation Study used a standard protocol to assess the incidence of lower limb amputation in ten different locations worldwide, and after twelve years remains the largest multinational study of its kind (Unwin, 2000). Marked differences in the incidence of lower limb amputation were observed between test centers, despite similarities in the age and sex distribution of amputations in their populations. For example, the annual incidence of first major amputations among males ranged from 2.8 cases per 100,000 of the population in Madrid, Spain, to 43.9 cases per 100,000 among the Navajo population in the United States. The significant variation observed across regions was attributed primarily to differences in the prevalence of diabetes and peripheral vascular disease (PVD).

### ***Morbidity And Mortality***

Major lower limb amputation is associated with considerable morbidity and mortality. Common postoperative complications include cardiac problems, pneumonia, and delayed wound healing due to infection or necrosis of the stump, which frequently necessitates revision of the amputation to a more proximal level of the affected limb (Aulivola, Ploeg, Lardenoye, Peeters & Breslau, 2005). The risk of losing the contra lateral limb following unilateral amputation ranges from 15-20% within the first two years of the initial procedure, and rises to 40% by four years post-amputation (Cutson & Bongiorno, 1996). There is evidence of increased morbidity among individuals with amputations secondary to diabetes, with the probability of experiencing cardiac failure and further amputation being twice as great as that observed among non-diabetic patients.

### ***Current Trends In Amputation***

Decreasing amputation rates among individuals with diabetes have been attributed to the growing use of innovative procedures to tackle dysvascularity, such as angioplasty and the prescription of lipid-lowering, antihypertensive and antiplatelet medications. Preventive health care and education for persons with diabetes may also have played a significant role, with diabetic foot care programmes proving highly effective in preventing or delaying the need for amputation in this population. These developments, along with the overall aging of the population, have additionally contributed to an increase in the average age at which amputation is performed across all etiologies.

### ***Quality Of Life And Amputation***

Physical part of the body was the most involved independent cause of amputation, whether it is due to vascular, traumatic or orthopedic causes, it is a mutilating surgery and it definitely affects

the lives of these patients. Quality of life automatically drops after losing any important part of one's body. Wald (2004) realized that given the complex physical and psychological issues involved in work related amputation, a comprehensive and holistic rehabilitation approach is recommended.

Singh (2008) conducted a study to explore the goal of rehabilitation after amputation and found that improvement in an individual's mobility and integration back into the community affected attributes are the physical capacity, the physical, general state of health, the social aspects, the emotional aspects and the pain.

Burger and Marincek (2007) claimed that the ultimate objective of rehabilitation is to allow amputees to integrate into the community as independent and productive members. The impact upon the person and the process of adjustment to limb amputation is a highly complex and dynamic one that varies across individuals (Saradjian, Thompson & Datta, 2008.). Although physical injuries can be treated through medical care and rehabilitation, the psychosocial impact can last for several months, years, or even throughout amputee's life. Besides, success of rehabilitation can be measured in many ways but a common outcome measure is successful fitting of prosthetic limb as use of prosthesis improves functional mobility and independence. Use of prosthesis is to restore body image and improve functioning in a cosmetically acceptable way (Saradjian, Thompson & Datta, 2008). The process of adjusting to work-related amputation often involves cognitive, emotional, and behavioral adaptations (Wald, 2004).

There are many factors that have been investigated in moderating a person's psychological adjustment to losing a limb including patient demographics such as age, gender and level of education. Rehabilitation in general involves regaining an acceptable level of functioning and participation (Kelly & Dowling, 2007). During the period shortly after amputation, Horgan & MacLachlan, (2004) say depression has been reported as being the reason for decreased use of their prosthesis and lower level of mobility amongst people with long term amputations. There is a process of adjustment to prostheses, which also demonstrated the individuality of a person's relationship to it (Saradjian, Thompson & Datta, 2008). Rehabilitation includes re-training and re-education of those who have become partially or wholly incapacitated (Kelly & Dowling, 2007).

### ***Cognitive Behavioral Therapy***

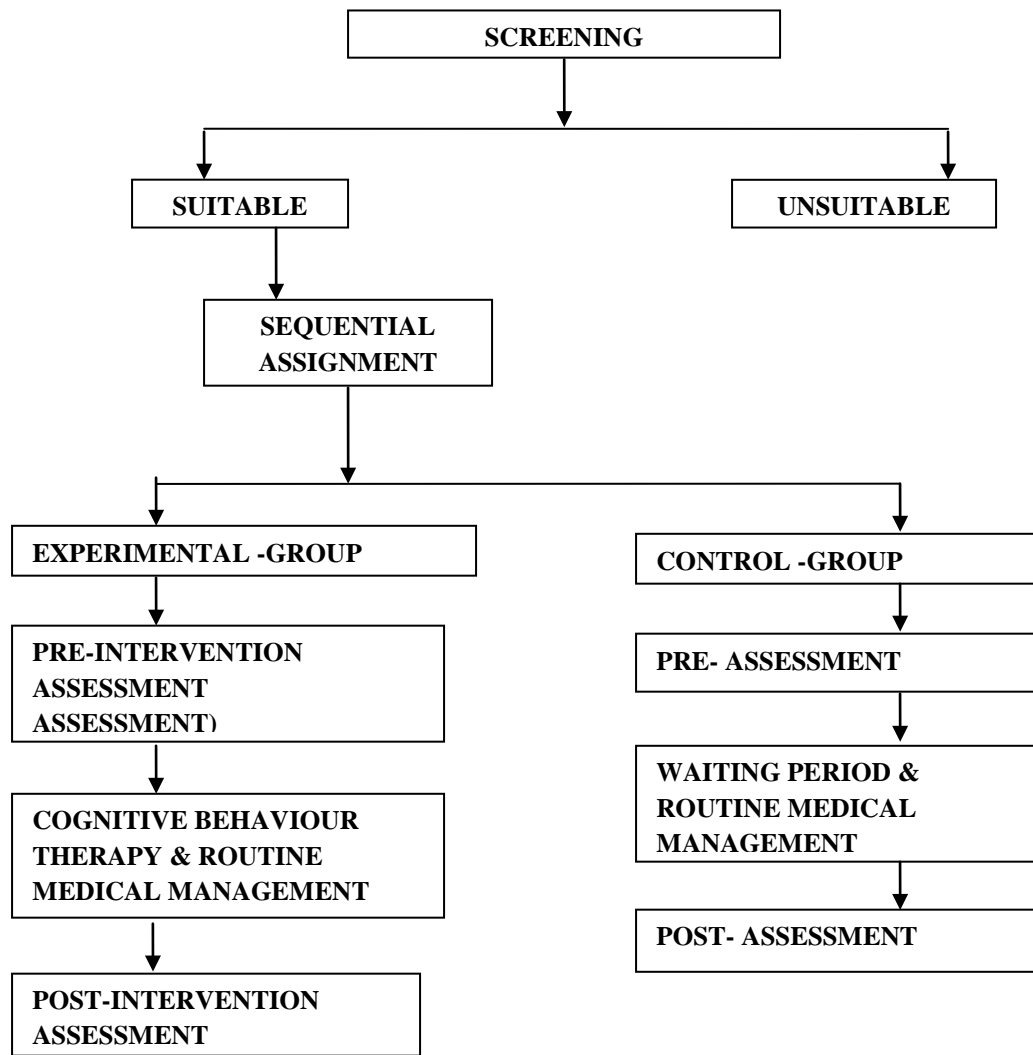
Cognitive Behavior therapy defined as the psychotherapeutic approach based on learning principals in which treatment consists of identifying and modifying the maladaptive mediating and maintaining, cognitive, perceptual, behavioral, affective physiological and environmental factors. Modification implies eliminating/reducing the maladaptive and instilling/strengthening the adaptive behaviors. Cognitive Behavior therapy is a unique category of psychological intervention based on scientific models of human behavior cognition and emotion (Dobson, 2000).

### **Socio Demographic and clinical data sheet:-**

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This was developed for the present study to obtain demographic details, clinical data, personal and family history.

**WHO Quality of Life Scale-Brief Version-**The WHOQOL- BREF, development by WHO (1996), is a shorter version of WHOQOL-100 comprising of 26 items. The scale provides a measure of an individual's perception of quality of life for the 4 domains 1) Physical health (7 items), 2) Psychological (6items), 3) Social relationship (3items) and 4), Environment (8 items). In addition to the 4 domains, it also includes 2 items from 'Overall Quality of Life' and 'General Health' facets. The internal consistency of WHOQOL –BRIEF as determined by chronbach 's alpha co-efficient ranges from 0.66-0.84. The test- retest reliability (ranging from 2-8 weeks) is between 0.66-0.87. The scale is also found to have good discriminant validity (The WHOQOL Group,1998). The domain scores are scaled in a positive direction (i.e. higher scores denote higher quality of life). Tool was used only once i.e. at pre-assessment, while tools 2-9 (all these tools self-rating measures) were used at pre and post –assessments.



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*Table 2: Sample characteristic Percentage wise for sex, education, occupation, marital status and income of amputee patients between Experimental and Control groups*

CHARACTERISTICS		EXPERIMENTAL GROUP (N=50)		CONTROL GROUP (N=50)	
		N	%	n	%
<b>SEX</b>	Male	40	80	45	90
	Female	10	20	05	10
<b>EDUCATION</b>					
	Primary	17	34	15	30
	High School	12	24	14	28
	Intermediate	08	16	10	20
	Graduates	09	18	08	16
	Post -Graduate	04	08	03	06
<b>OCCUPATION</b>					
	Unemployed	19	38	20	40
	Employed	15	30	15	30
	House wife	08	16	08	16
	Students	08	16	07	14
<b>MARITAL STATUS</b>					
	Single	16	32	15	30
	Married	34	68	35	70
	Separated	-	-	-	-
<b>INCOME</b>					
	< Rs 1000	02	04	03	06
	Between Rs 1000-2000	08	16	07	14
	Between Rs 2000-3000	12	24	09	18
➤	Rs 3000-4000	28	56	31	62

Table -2 indicates that majority of patients in both Experimental and Control group were male married belong to low income; Hindus and educated up to 5 to 10 years.88 percentage of the patients were unemployed.

**EFFICACY OF CBT IN ENHANCING QUALITY OF LIFE**

*Table -6: Showing means SD and ‘t’ values between Pre and Post assessment for Experimental and Control groups on the WHOQOL-BREF scores*

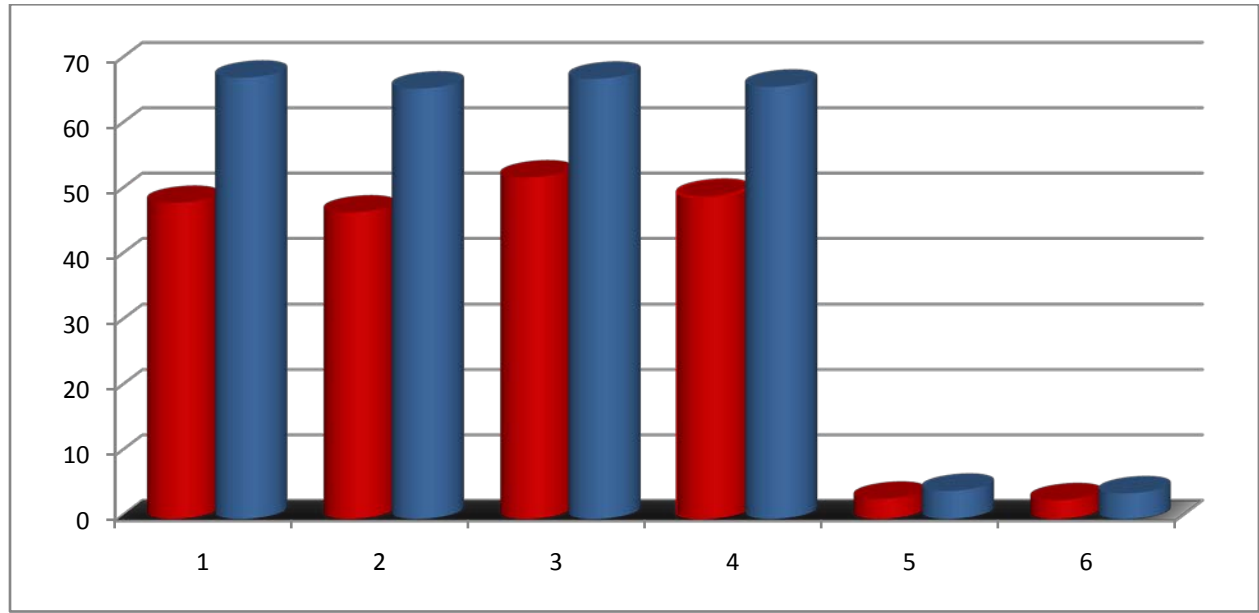
WHOQOL-BREF	Experimental group (n=50)			Control group (n=50)		
	Pre	Post	‘t’ Values	Pre	Post	‘t’ Values
	Mean (SD)	Mean (SD)		Mean (SD)	Mean (SD)	
Physical health	43.22 (11.75)	67.50 (10.55)	7.66**	48.34 (15.55)	51.77 (15.45)	0.91
Psychological	54.67 (15.68)	65.84 (13.82)	5.14**	51.78 (16.45)	53.23 (22.29)	1.18
Social – relationships	59.24 (17.35)	67.34 (16.780)	2.11*	60.11 (20.34)	59.10 (20.72)	1.39
Environment	49.23 (18.12)	66.12 (14.06)	5.39**	52.78 (16.23)	56.18 (14.95)	0.45
Overall QOL	3.12 (1.39)	4.34 (0.81)	3.57*	3.78 (0.67)	4.35 (0.89)	0.57
Overall health	2.90 (1.23)	3.95 (1.03)	4.13**	3.12 (0.88)	2.98 (0.74)	0.97

NS: Not Significant, \*p< 0.05, \*\* p<0.01

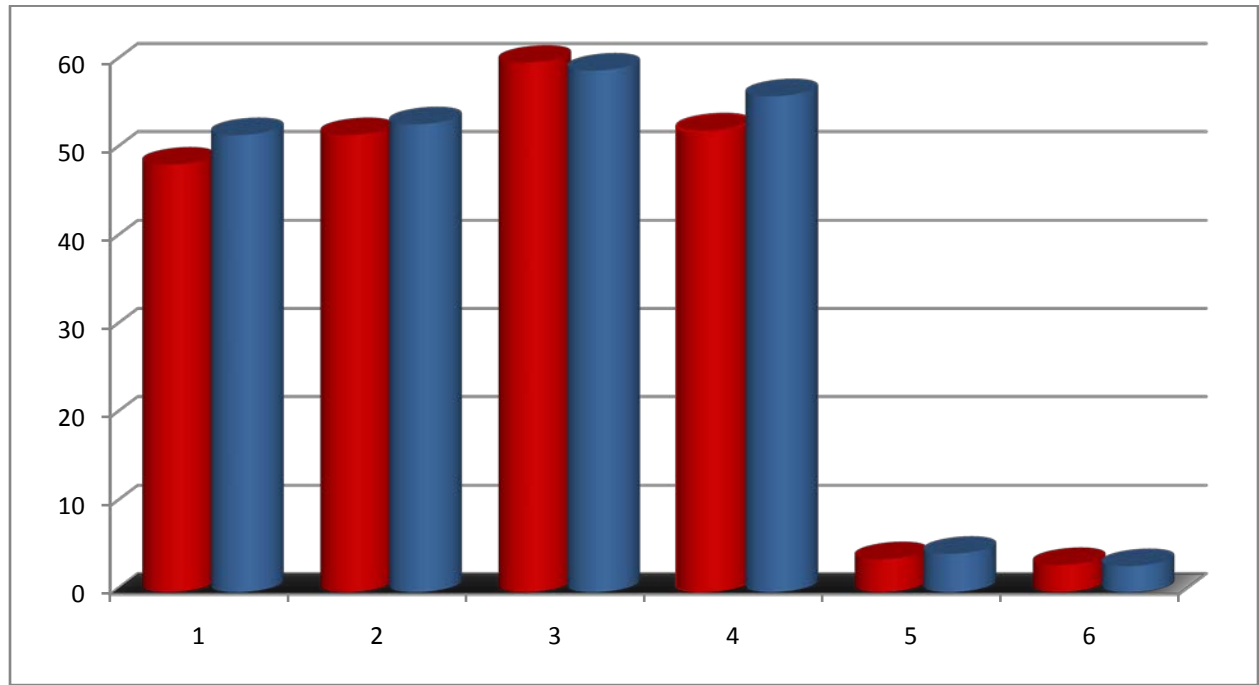
QOL scores show significant improvements in the Experimental group in all the domains. In addition, there were significant improvements in overall QOL and overall health in the experimental group. There were no such significant differences on any of the QOL scores in the control group. The mean scores for the experimental and control groups on WHOQOL-BREF at pre-and post assessments are depicted in Figs.6a and 6b.

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**Figure 6.a:** Showing mean scores of all domains for pre-and post assessment among Experimental group on WHOQOL-BREF



**Table -6.a :** Showing mean scores of all domains for pre-and post assessment among CONTROL group on WHOQOL-BREF



## DISCUSSION

### **Efficacy of CBT in enhancing quality of life (QOL)**

QOL was measured using the WHOQOL-BREF. QOL, as defined in the manual of this tool, is a broad concept, incorporating in a complex way, the person's physical features of their environment. The effect of CBT on these domains is discussed below.

**Physical health domain:** This is related to activities of daily living, energy and fatigue, pain and discomfort, sleep and work capacity. Significant differences were found on this domain in the Intervention group following intervention (see Table -6a). Improvement on this domain is characterised by decrease in pain intensity, improved sleep and work capacity.

**Psychological domain:** This includes items on bodily appearance, positive and negative feelings, self esteem, spirituality, thinking, memory and concentration. Table -6a indicates that the Intervention group patients showed significant improvement on this domain, while no such changes were seen in the control group. This indicates that the CBT helped increase self- esteem and decrease negative feelings anxiety, depressive cognition and sadness.

**Social domain:** This includes personal relationship, Social support and sexual activity. Table-6a indicates significant positive changes in the intervention group following CBT, while the control group did not show any such changes. The Experimental group participants thus reported significantly greater satisfaction in this domain. One may hypothesize that behavioral counseling to significant others, educating patients about communication and quipping them problem – solving skills may account for the improvement in this domain.

**Environmental domain:** This includes items related to financial resources, physical safety and security, health care accessibility, home and physical environment, opportunities for acquiring information and skills, opportunity for recreation and transport facilities. Table- 6a shows that there were no significant changes in both the groups on this domain.

In addition, WHOQOL-BREF has two items, one each on **overall QOL** and **overall health**. Table-6a indicates that there significant improvement on both these items in the Experimental group while no such were seen in the Control Group.

In light of the positive changes o QOL among the Experimental group patient and no such changes in the control group, one may conclude that CBT was effective in enhancing QOL in patients with amputation.

Thus, the findings of the present study indicate that **CBT is effective** in reducing distress, disability and enhancing **quality of life** of patients with amputation. **Table -6a-b:** Showing mean scores of all domains for pre-and post assessment among Experimental group on WHOQOL-BREF.



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