QUALITY OF LIFE AMONG LOWER LIMB PROSTHESIS USERS ATTENDING ARTIFICIAL LIMB CENTER OF FAUJI FOUNDATION HOSPITAL RAWALPINDI

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ABSTRACT

Objective: To assess quality of life and the influencing factors as perceived by lower limb prosthesis users.
Study Design: Cross sectional study.
Place and Duration of Study: Artificial Limb Centre, Fauji Foundation Hospital Rawalpindi, 11 months (Jan to Nov 2014).
Material and Methods: A sample of 50 patients with lower limb amputations and using lower limb prosthesis were recruited by applying inclusion criteria. Responses were recorded on demographic variables, reasons for amputation, time of provision of prosthesis, employment status etc. by the investigator on a structured pretested questionnaire after their consent. A *p*-value of <0.05 was taken as significant. Quality of life was interpreted on 5 point Likert scale. Data was analyzed in SPSS version 21.
Result: Majority of respondents i.e. 17 (34%) were in 51-60 years age group with mean age 46 ± 14 years while 33 (66%) were males and 27 (54%) illiterate, 33 (66%) could afford a prosthesis. Trauma 28 (56%) was the most prevalent cause of lower limb amputation and among them 15 (53%) had road accident injuries. Various factors influenced quality of life as perceived by the respondents and in 10 (20%), 16 (32%), 25 (50%) social, family life and emotional status was affected respectively, while 14 (28%) of the prosthesis user were unemployed. Prosthesis were provided after 2 years in 18 (36%) and in 37 (74%) prosthesis were provided by the health care facility. Good quality of life was perceived in 40 (80%) respondents.
Conclusion: Perceived Quality of life was good in majority of the prosthesis users but others can't be ignored. It can be improved by early provision of prosthesis which can help in better employment opportunities.

Keywords: Amputation, Mobility, Prosthesis, Pain, Quality of life, Rehabilitation.

INTRODUCTION

The most devastating event which a person can face physically and physiologically is the loss of a limb but with appropriate rehabilitation people may achieve utmost functionality and live high quality life. Most valuable rehabilitative gauge of an amputee is Prosthesis which means an artificial device that replaces a missing part is suppose to improve quality of life. WHO defines "Quality of Life as individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns?"[1]

Quality of life (QOL) is the general well being of societies and individuals and demarcating negative and positive aspects of life. It visualizes life satisfaction, including everything from, family, education, physical health, employment, wealth, religious beliefs, finance and the environment[2].

It is a wide ranging concept affected in a intricate way by the person's physical health, level of independence, psychological state, social interaction, personal values and their relationship to relevant features of their environment. World Health Organization QOL Scale (WHOQOL) includes physical, psychological, social and environmental domains and measures the individual's perception of their quality of life. A synchronized approach by practitioners in the field of prosthetics is necessary to ensure the insertion of QOL as an outcome measure[3]. The factors related with the good QOL include higher

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education, employment and having comfort on prosthetic wearing. The lower limb amputation constitutes a major handicap and we can lessen the risk of this incapacity by a good and suitable rehabilitation[4]. Incidence of lower limb amputation is also larger than the upper limb. The frequency of amputations ranges from 1.2 to 4.4 per 10,000 populations in different countries[5]. It is anticipated that these numbers might be twofold by the year 2050[6]. 1.7 million people in the United States of America have a limb loss.

Approximately 185,000 amputations take place in the United States each year[6]. It is predicted that one out of every 200 people in the U.S. has had an amputation[7]. The main causes among those who are living with a limb loss are vascular disease (54%) including diabetes and peripheral arterial disease, trauma (45%) and cancer (less than 2%)[8]. The lower limb amputees experience more changes in their life after the amputation as compared to the upper limb amputees[9]. A multifaceted set of tasks are faced by a new amputee in order to return to an adaptive mobility status. The prosthesis type and quality had a great effect on the patient's physical quality of life and mental ability of adjustment[4]. Successful recommencement of daily activities with the prosthesis is attained by only 56% to 87% of likely prosthetic users; however the manner of selecting patients plays a major role[10].

Quality of life can be improved by appropriate and timely intervention by prosthesis; there is dearth of data regarding prosthesis users and quality of life in Pakistan. We planned this study to highlight quality of life in prosthetic users and to look into the influencing factors. Present study will help to identify areas of potential improvement in the management of people with lower limb prosthesis and also help identify if there are any aspects that can be modified to improve their quality of life.

Objectives

To assess the quality of life as perceived by lower limb prosthesis users attending outpatient department of Artificial Limb Centre (ALC) and to identify the influencing factors.

MATERIAL AND METHODS

A cross sectional study was done at ALC Fauji Foundation Hospital (FFH) Rawalpindi from January to November 2014. Ethical approval from the standing Ethical approval committee of the institute was taken. As no prevalence was found after going through the literature search on this subject, by taking estimated prevalence of 50%, a sample of 364 was calculated by using online Sample Size Calculator for Prevalence Studies (SSCPS version 1.0.01xls) for infinite population, estimated prevalence taken as 0.5 with *p*-value <0.05 and Confidence level of 95%. However due to limitations of the study 50 lower limb prosthesis users who were visiting ALC were recruited after taking their consent through consecutive sampling. Willing respondents who were above the age of 18 years using lower limb prosthesis were included in this study. Every consecutive eligible respondent reporting at the outpatient department of ALC was recruited till a sample of 50 was achived. Self structured questionnaire was developed and pretested on individuals belonging to another setting and after necessary amendments it was finalized. The responses were recorded by the researcher on the variables like age, gender, educational level, employment status, reasons for amputation, and time period from amputation to provision of prosthesis, pain with the use of prosthesis, perceived quality of life, mobility, and daily routine and social life. Data was analyzed on SPSS version 21. Quality of life was interpreted on 5 point Likert rating scale (very poor, poor, good, very good, excellent) and ≥3 was taken as good whereas <3 as poor ranging from very poor having score of 1 to excellent with a score of 5. The value of cronbach's alpha value of 0.784 falls in acceptable range. Responses were recorded as "yes" and "no" for influencing factors of Social restrictions, affect on daily routine life, emotional disturbances, and difficulty in walking with prosthesis, employment status of the prosthesis users, time period from amputation to provision

of prosthesis and pain on wearing prosthesis. Descriptive statistics was applied by commuting frequencies and percentages.

RESULTS

The study revealed that majority of the respondents ie 17 (34%) were in 51-60 years age group with mean age 46 ± 14 years, while 33 (66%) were male and 27 (54%) were illiterate, 37 (74%) belonged to rural areas with 33 (66%) economical affordability for procurement of prosthesis and 37 (74%) were provided prosthesis by the hospital (table-I). Trauma was the most prevalent cause of lower limb amputation in 28 (56%) and road side accidents 15 (53%) was the main cause of trauma (figure). Various factors influenced the quality of life as perceived by the respondents and in 10 (20%), 16 (32%) social and family life was affected respectively, while 14 (28%) were unemployed after the amputation and prosthesis were provided after 2 years in 18 (36%) (table-II).

Table-I: Demographic characters of the respondents (n=50).

Variables	Frequency	Percentage (%)
Age in years: Mean 46 ± 14		
20-30	12	24
31-40	6	12
41-50	5	10
51-60	17	34
61-70	10	20
Gender		
Male	33	66
Female	17	34
Educational level		
Illiterate	27	54
Matric	13	26
Intermediate	5	10
Professional degree	5	10
Residence		
Urban	13	26
Rural	37	74
Prosthesis affordability		
Yes	33	66
No	17	34
Source of financing for procuring prosthesis		
ALC/FFH	37	74
Self	13	26

DISCUSSION

The loss of a body part disturbs the integrity of the body and affects the quality of life in all its dimensions. Amputation means a drastic impact on the patient's body and its perception[11,12] and that too of lower limb. Use of prosthesis has a great role in the quality of life. Our study revealed that the results are in line with the reference study[4] conducted at the same setting two years back and concluded that the majority of the respondents belonged to 51-60 yrs age group, males were affected more and majority had a rural residence. In our study more than half of the respondents were illiterate which is consistent with the national literacy levels[13]. Our study result showed that the cause of amputation is mostly trauma and the most common cause of

trauma is road side accidents which are supported by another study done in Korea[14,15]. This also supports the finding that males are more exposed to situations in which the chances of trauma are more as compared to females. The other primary causes of amputation are diseases (i.e. vascular diseases, diabetes, tumors and malignancies, infections) and congenital deformities[16] which are matching with our study results. The unemployment status was less in our as compared with the reference study. This may be due to the fact that half of the study group was provided with the prosthesis in less than one year time. Half of our study group has difficulty in job resumption and reintegration which is also supported by another study finding[17]. Age at the time of amputation, wearing comfort of the prosthesis, and education level were indicators of successful job reintegration[18].

Less than half of the prosthesis users were experiencing pain with their use which is contrary to another study which showed that majority reported with residual limb pain[19]. This is indicative of better prosthesis, and training of users at the study setting.

Majority of the persons as reflected in our study results were enjoying a good quality of life as they were well adjusted in society and their families because of our social and cultural norms. While in only one fifth of the study population it was found to be poor being influenced by the factors as identified in this study. So the early provision of prosthesis, education, good family and social life, less emotional disturbances and comfortable prosthesis are the factors which can improve the quality of life among the lower limb amputees using prosthesis perceived as poor.

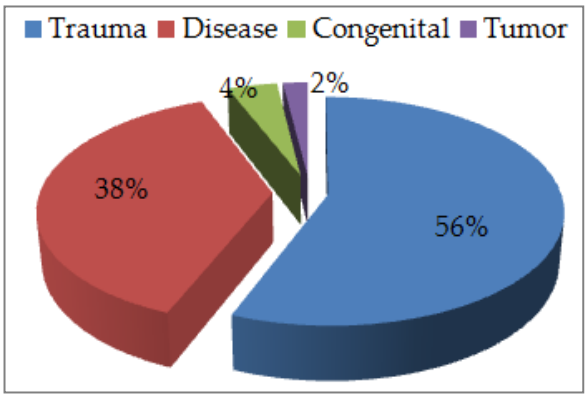

Figure: Causes of lower limb amputation among the respondents.

In a systematic review it was highlighted that there is dire need for high-quality research studies that reflect the effectiveness of different prosthesis interventions in terms of user's daily living and QOL[20].

Table-II: Factors effecting quality of life as perceived by the respondents (n=50).

Factors	Yes (n/%)	No (n/%)
Social restrictions	10 (20%)	40 (80%)
Daily routine life affected	6 (12%)	44(88%)
Disturbed family life	16 (32%)	34 (68%)
Emotional disturbances	25 (50%)	25 (50%)
Difficulty in walking with prosthesis	1 (2%)	49 (98%)
Employment status of the prosthesis users	36 (72%)	14 (28%)
Time period from amputation to provision of prosthesis	<2 years 32 (64%)	≥2 years 18 (36%)
Prosthesis painful	22(44%)	28 (56%)

There were certain limitations of this study as the responses were not recorded by a single researcher so information biases can't be excluded. The study design might have been a case control study for comparison and the generalize ability of study was compromised due the method of selection of the participants, single setting of research and a smaller sample size.

CONCLUSION

Perceived Quality of life was good in majority of the prosthesis users. It can be

improved by early provision of prosthesis which will enable them for better employment opportunities. This will further enhance their quality of life.

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CONFLICT OF INTEREST

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

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