

The Impact of Lower Limb Amputation on Quality of Life: A study done in the Johannesburg Metropolitan area, South Africa

Abstract

Background: The impact of non-traumatic lower limb amputation on participant's quality of life (QOL) is unknown. In an effort to provide better care for people with lower limb amputation, there is a need to first know the impact of this body changing operation on people's quality of life.

Aim of the study: To determine the impact of lower limb amputation on QOL in people in the Johannesburg metropolitan area during their reintegration to their society/community of origin.

Objectives:

1. To establish the pre-operative and post-operative:
 - QOL of participants (including the feelings, experiences and impact of lower limb amputation during the time when they have returned home and to the community).
 - The functional status of participants.
 - Household economic and social status of these participants.
2. To establish factors influencing QOL.

Methods: A longitudinal pre (amputation) test –post (amputation) test study utilized a combination of interviews to collect quantitative data and in-depth semi-structured interviews to gather qualitative data. Consecutive sampling was used to draw participants (n=73) for the interviews at the study sites pre-operatively. The three study sites were Chris Hani Baragwanath Hospital, Charlotte Maxeke Johannesburg General Hospital and Helen Joseph Hospital. Participants were then followed up three months later for post-operative interviews and key informants were selected for in-depth interviews (n=12).

Inclusion criteria: Participants were included if they were scheduled for first time unilateral (or bilateral amputation done at the same time) lower limb amputation. The participants were between the ages of 36-71 years.

Exclusion criteria: Participants who had an amputation as a result of traumatic or congenital birth defects were excluded from the study. Participants with co-morbidities that interfered with function pre-operatively were not included.

Procedures:

Ethics: Ethical clearance was obtained from the Committee for Research on Human Subjects at the University of the Witwatersrand and permission was obtained from the above hospitals. Participants gave consent before taking part in the study.

Instrumentation: A demographic questionnaire, the EQ-5D, the Modified Household Economic and Social Status Index (HESSI), the Barthel Index (BI) and semi-structured in-depth interviews were used.

Data collection: Participants were approached before the operation for their pre-operative interviews using the above questionnaires and then followed up post-

operatively using the same questionnaires and some were selected to participate in semi-structured in-depth interviews three months later.

Pilot study: The demographics questionnaire and the modified HESSI were piloted to ensure validity and reliability.

Data analysis: Data were analyzed using the SPSS Version 17.0 and STATA 10.0. The significance of the study was set at $p=0.05$. All continuous data are presented as means, medians, standard deviations and confidence intervals (CI 95%). Categorical data are presented as frequencies. Pre and post operative differences were analyzed using Wilcoxon Signed-rank test. A median regression analysis (both the univariate and multivariate regression) was done to establish factors influencing QOL. Pre and post operative differences in the EQ-5D items and the BI items were analyzed using Chi square/Fischer's exact depending on the data. Data were pooled for presentation as statistical figures in tables. Both an intention to treat analysis and per protocol analysis were used.

A grounded theory approach was used to analyze the concepts, categories and themes that emerged in the qualitative data.

Results: Twenty-four participants (33%) had died by the time of follow up. At three months, $n=9$ (12%) had been lost to follow up and 40(55%) was successfully followed up. The preoperative median VAS was 60 ($n=40$). The postoperative median VAS was 70. The EQ-5D items on mobility and usual activities were reported as having deteriorated significantly postoperatively ($p=0.04$, $p=0.001$ respectively) while pain/discomfort had improved ($p=0.003$). There was no improvement in QOL median VAS from the preoperative status to three months postoperatively

The preoperative median total BI score was ($n=40$). The postoperative median total BI score was 19. There was a reduction in function (median BI) from the preoperative status to three months postoperatively ($p<0.001$).

The ability to transfer was improved three months postoperatively ($p=0.04$). Participants were also found to have a decreased ability to negotiate stairs ($p<0.001$). Mobility was significantly reduced three months postoperatively ($p=0.04$).

During the postoperative stage ($n=40$), 38% of the participants were married. Most (53%) of the participants had no form of income. The highest percentage of participants in all instances (35%) had secondary education (grade 10-11), while 25% had less than grade 5. Only one participant was homeless, 18% lived in shacks, 55% lived in homes that were not shared with other families.

People with LLA in the Johannesburg metropolitan area who had no problem with mobility preoperatively (EQ-5D mobility item), who were independent with mobility (BI mobility item) preoperatively, who were independent with transfer preoperatively (BI transfer item) had a higher postoperative quality of life (postoperative median EQ-5D-VAS) compared to people who were dependent or had problems with these functions preoperatively. Being females was a predictor of higher reported quality of life compared to being male.

Emerging themes from the qualitative data were psychological, social and religious themes. Suicidal thoughts, dependence, poor acceptance, public perception about body image, phantom limb related falls and hoping to get a prosthesis were reported. Some

reported poor social involvement due to mobility problems, employment concerns, while families and friends were found to be supportive. Participants had faith in God.

Conclusion: Participants' QOL and function were generally scored high both preoperatively and postoperatively but there was a significant improvement in QOL and a significant reduction in function after three months although participants were generally still functionally independent. Good mobility preoperatively is a predictor of good QOL postoperatively compared to people with a poor preoperative mobility status. Generally, most participants had come to terms with the amputation and were managing well while some expressed that they were struggling with reintegration to their community of origin three months postoperatively with both functional and psychosocial challenges.